



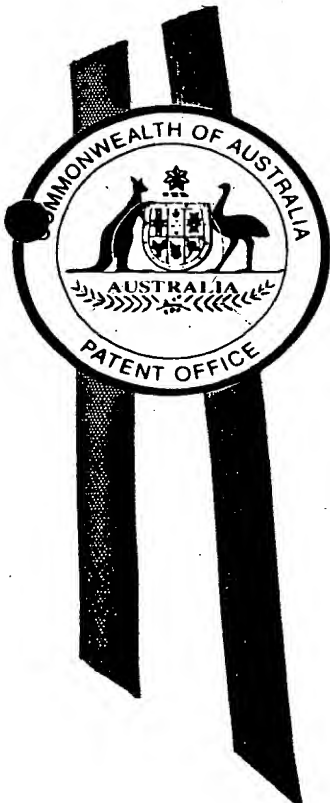
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I, LEANNE MYNOTT, TEAM LEADER EXAMINATION SUPPORT AND SALES hereby certify that annexed is a true copy of the Provisional specification in connection with Application No. PP9408 for a patent by TIME DEVELOPMENTS PTY LTD filed on 23 March 1999.



WITNESS my hand this  
Fifth day of April 2000

A handwritten signature in black ink, appearing to be "L. Mynott".

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# PROVISIONAL SPECIFICATION

Invention Title: **Interactive building module**

The invention is described in the following statement:

IP Australia  
Document disclosed on

24/02/1999

Batch No

## INTERACTIVE BUILDING MODULE

### Field of the Invention

This invention relates to interactive building modules and refers particularly, though not exclusively, to interactive building modules capable of flexible use and  
5 arrangement.

### Definition

Throughout this specification reference to hotel is to be taken as including a reference to a motel and/or serviced apartment. Furthermore, a reference to an office to be taken as including a reference to a serviced office.

### 10 Background to the Invention

In order to suit the varying requirements of people today and tomorrow, new real estate concepts are required to conserve and enhance the community's resources so that the ecological process, on which life depends, is maintained and the total quality of life, now and in the future, will improve. The present invention is  
15 based upon a contemporary planning view: that a healthy city should consist of numerous nodes: high energy, dense, and interactive urban villages. The historical approach of separating employment areas from residential is no longer necessary or efficient. Accordingly, the present invention uses mixed use centres.

Technological development and subsequent global economic and social  
20 change have made employment an important issue. Urban village models aims to foster local employment, training and shopping opportunities for those working in the new service economy, and minimises their travel costs and time. Urban villages encourage small and home-based business solutions. In addition, higher concentrations of residents will help support more of these businesses, which in  
25 turn can provide many of the facilities and further infrastructure that additional small businesses need to operate. The total number of people employed in small business has increased dramatically and now exceeds that of large business.

Furthermore, in Australia, 57% of small businesses have no employees beyond the owner, and 22% are home based.

It is becoming event that the strength of an economy relies not on physical trade but the movement of ideas and skills. One can thus contemplate the  
5 creation of communities, which are more internally focused and truly 'sustainable'  
in that they bring cause and effect closer together and are more responsive to  
their members. Further potential lies in establishing business frameworks which  
are supportive of people in local places and which reflect the nature of these  
places. This potential may be best realised by grouping ownership of such  
10 businesses and by extending the concept of 'ownership' as widely as possible  
through organised business systems.

A society which is cross linked and fosters the ideas and skills of its people  
is a society which will succeed in improving the well being of its people. Further, a  
society which is connected to global information and culture, fostering the ideas  
15 and skills of its people, accommodated in well designed more functional buildings,  
is a more intelligent vision of the future.

### **Brief Summary of the Invention**

The present invention involves interactive modules for a building and which  
are capable of use as an office, hotel or for residential purposes. It is preferred  
20 that there is an inter-connected network of buildings, investors, occupiers and  
business operators. The buildings will be located adjacent to areas of high  
commercial and retail activity and be designed to tap into the existing  
infrastructure of these centres. A network of inter-connected businesses can  
therefore be established through the building's ground level retails areas and  
25 some of their upper level modules. The proposed legal and financial structure will  
aid the invention. A company may be established, via prospectus under the  
Managed Investments Act, and units sold in order to provide the funding required  
for the progressive development of new buildings.

The system allows unit-holders security and flexibility so that they can

consider their investment in the manner of shares or units held; and/or modules for renting; and/or by way of occupancy of one or more modules; and/or modules for use in the manner of a hotel and/or office. This enables them to share in the pooled income of, for example, hotel, serviced offices, and commercial components of the company's assets, or to take possession of any available module (anywhere within the group's buildings), under licence from the company in exchange for the income on the required number of units. This option to forego income on shares for the right to occupy would also entitle the unit holder to the right to a conditional mortgage on the module's individual title. The condition on the mortgage would require the banks recover moneys only through the sale of shares in the company. However, the benefit to the banks is that they could sell the units in one batch, into the residential or office sectors, or sell the units in the company in any quantity based upon their income stream and market value.

Financially, the model is secure as the optional access to income pooling of numerous buildings in separate locations minimises the risk of economic changes to different geographic areas over time.

The physical design of the module allows for residential, office, and hotel uses from the same space at any point in time. Transference from one use mode to another may merely require changing and/or moving furniture, and possible reprogramming of certain services such as, for example, telecommunication services. The design streamlines the daily activities of its occupants, and also provides them with the ability to live, work and have relaxation in the same geographical area, the same building, or even within the same module. The module is one standard space and is efficient to construct as many of its components may be pre-fabricated. The structure may consist of tilt-slab walls, and colored concrete floors. The module may be produced in two general designs, one to provide the standard one bedroom hotel suite/office/residence; while the second will be slightly larger and incorporate an additional room. Module sizes may be of any suitable size such as, for example, 55m<sup>2</sup> and 75m<sup>2</sup> respectively. The layout may include of two or three inter-connected rooms, and two service areas. The two module types may vary in depth by, for example, 3m enabling

flexibility in the selection of suitable sized sites.

5 The modules themselves may be durable, and may be fitted-out in a contemporary minimalist style, utilising industrially designed components and fittings. The main living/office space may have a 3m high ceiling, with the floor and ceiling optionally being sealed, colored concrete. The walls may be plasterboard battened off the pre-cast dividing walls, creating a better acoustic barrier between modules. Plasterboard preferably will be used throughout the module, more preferably with a shadow line detail at the ceiling, and may have a stainless steel skirting at the floor.

10 Advantageously, each module will have a full height retractable glass stack wall system with direct access to northern or western sunlight. A further window may be provided into controlled garden environments (for example, three level garden voids), which are preferably located between the modules. The room advantageously contains a built-in video/computer/communications monitor which  
15 will be linked to a spectrum 2-way radio frequency colour touch screen remote control module. For use of the computer functions an optional remote keyboard may be available and may further link the occupant with the building group's information, building control and service systems.

20 The modules are preferably responsive to the environment, and may include energy management systems, controlled internal gardens, rubbish recycling, and so forth. More preferably, all modules are connectable to the major global information networks.

By having structured systems encouraging interaction, business and social environments may be aided and/or streamlined.

25 The modules are preferably culturally interactive to draw on global tourism to encourage information exchange. Furthermore, the modules may have inherent feedback so that the desires of a person, or particular classes of persons may be "learnt" so that modules may be pre-set for them prior to occupancy.

### Description of the Drawings

Figure 1 is a perspective view of a smaller interactive module for a building according to the present invention;

Figure 2 is a perspective of larger interactive module;

5 Figure 3 is an exterior perspective view of a building according to one embodiment; and

Figure 4 is an exemplary floor plan of the building of Figure 3.

### Description of Preferred Embodiment

To firstly refer to the drawings, the module carries a high emphasis on  
10 environmental design. One aspect of this is a minimalist "cube-like" structures, each of which will be clad on the northern 10 and western 12 facades of an interactive louvred screen 14. The blades 16 of the screen 14 will automatically articulate during the day according to the sun's position over the building and its intensity, and may be controlled by each unit's control module (not shown). The  
15 facades of the controlled atrium environments 18 will operate from their own control modules (not shown).

Each major floor of the building has a number of units or modules (see figure 4). In each module the main rooms are located on a raised mezzanine level, providing a reduced ceiling height (e.g. 2.65m) and, under the floor, a void ideal  
20 for plumbing and other building services. The mezzanine area consists of a main room 20 located off the entry hall 30. The room 20 is accessible from the hallway 30 by sliding door 32. The main room 20 has a built-in storage module 24 and a window or door 34 into a controlled garden environment 18. The room 20 also has  
25 a frosted glass wall system 28 which may be partially or fully removed, opening into the main living room/office/bedroom area 36 for further flexibility. The office/bedroom/living room 36 may also provide a secure lockable area via lockable door 22 accessible by modular unit holders and not hotel guests.

Two service areas are provided. Firstly, a bathroom 26 with a full-height window 38 onto a controlled garden environment 18. The bathroom 26 is minimalist in design, containing industrial fittings, flush-mounted toilet system 40, single or dual vanity 42, and a sunken spa bath 46 which may have a shower over. The second service area provided is the security lobby 30 to each module, allowing for efficient interchange with the group's building services network via services shaft 50, which will have restricted access. The area 50 will house a standard 'interchange' module, consisting of separate, stainless steel removable compartments, accommodating deliveries of building services and rubbish recycling, and so forth. A small but functional stainless kitchen unit 48 is located in hallway 44, and provides a kitchen galley, which may be closed off and hidden away by simply sliding a cover screen (not shown).

As shown in figure 2, for the larger interactive module, an extra room 54 is provided for multi-purpose use such as, for example, office, storage, child's bedroom, or the like. The room 54 is closed off from room 20 by sliding wall panels 56, which may be opened if desired.

The design principle of enabling the same space to be used for different uses over time is not only efficient but it also increases the ability of the property to obtain income. The transference of a module from one use to another may merely require the moving and/or replacement of some or all of the furniture, and possibly the reprogramming or alteration of certain services (eg telecommunications) to suit the requirements of the occupant and/or the use of the module. For example, an office may not require beds, but may require increased telecommunications facilities. This principle also applies to the living space, which can convert to outdoor living space. With all modules having direct frontage to northern and western sunlight the indoor living space 36 can be converted by removing the retractable glass wall 52 allowing cross flow of air through the module. Simply by adjusting the angle of the louvres 16 of the louvred screen 14, or lowering and stacking it, the occupant has the option of allowing direct sunlight into the space 36. The deletion of separate external space has enabled provision of more spacious living spaces within the module for the same price.



The northern 10 and western 12 elevations of the building's facades will have independently interactive aluminium louvred screens 14, which will prevent entry of heat from beyond the glass facade 52. The blades 16 will articulate according to the sun's position over the site and its intensity. The system will be  
5 linked with the climate control functions of each module's automation system and each garden environment's independent automation system. The ambient light levels may be set and regulated by the occupant.

The general feeling of well being obtained by having garden and trees adjacent to living space cannot be explained. Generally however, the modules will  
10 have two or three storey atrium garden voids 18 containing a large trees and other shrubbery. These controlled environments may be protected from the external environment by a sealed glass curtain wall facade, which will also be screened by the attached external louvred facade 14. Air vents (not shown) at the ceiling and at the base of these voids will enable convectional and evaporative cooling.

15 An in-floor hydronic heat exchange system will be fitted to each module with an instantaneous gas furnace, which may also provide hot water to each module. In larger complexes underground heat exchange, may be added to the system. Generally, the earth will provide a constant temperature (appox. 17c) which can be boosted in winter and cooled during warmer months. When on  
20 automatic the climate control system may gain in efficiency by allowing direct sunlight onto each apartment's floor slab, creating a heat-bank effect when appropriate. When on automatic it may maintain the desired room temperature in an efficient way.

Each module's built in video monitor will provide cable and global satellite  
25 television, internet, email, direct communications with building management and provide an easy to use touch screen interface providing access to building services, which may include:

meals

washing

business services

groceries

dry cleaning

rubbish collection

- 5        The system may provide points around the module for telephones, printers and computers. With the global costs of such technology becoming more affordable the automation of modules will be within a reasonable budget. The system may also be linked to a built in and electronically projected surround sound compact disc and recordable mini-disk or D.V.D. sound and/or video reproduction
- 10    system. These services may be varied according to the nature of the use of the module and/or the requirements of the occupant. For example, the telecommunication needs of an office may be greater than for an apartment, but its "entertainment" aspects may be lower.

- Access to all building areas will be controlled by a security systems,
- 15    preferably by a smart card and monitoring system. In order to encourage circulation between buildings, module licence holders will be permitted access to the visitor car-parks located at each of the groups separately located buildings. The smart card may also be programmed so that the services relevant for the use of the module are thereby activated.

- 20        The tilt slab wall sections dividing the modules main living/office area may provide an infill block-work, with a removable section, enabling linkage of two modules together. This could create a luxurious two/four bedroom version with double living area or one larger office environment.

- Development sites will be chosen, as mentioned, for the availability of
- 25    northern and western sunlight. Sites will be chosen on or adjacent to fashionable and cosmopolitan shopping precincts with established infrastructure. Sites with large northern and western frontages, which suit the establishment of interactive

commercial uses at street level, will also be preferred. Buildings generally will not be built boundary to boundary. However, any vacant land will be heavily vegetated.

5 The commercial areas will generally have high ceilings (e.g. 5m) with the upper regions (e.g. 2m) of the shop-front fixed glass with an external sun screen attached. The lower section (eg 3m) will have the same glass stack wall system, capable of being opened, as used in the modules. This will allow maximum flexibility in respect to varying retail uses over time. Cafe and restaurant uses will be designed to promote maximum interaction between the street and the building  
10 foyer. Entry foyers should contain a garden, water feature and a back-lit poster portraying changing themes within the group from time to time.

Building information, communications, control and service systems may be linked to the management office. The buildings and preferably automated; features should include energy management, access control, lighting and process  
15 control systems amongst others. The system's flexibility ideally suits the requirements of the "city within the city" concept and can be scaled from a single site, single door access control system, all the way to a multi-site, multi-tenant system controlling thousands of access points in numerous buildings. This allows progressive development of these systems as the group grows.

20 The cost of construction should be much the same as for traditional residential unit construction. Due to cost savings associated with mass production of components, the presence of sub-floor service voids, and deletion of floor, ceiling and external surface finishes, the buildings will be easy and economical to build. As the company grows greater economies of scale will enable the base  
25 technology and systems to be extended and upgraded.

A further 'direct and sustaining link' will then become possible by linking business performance with the company via turnover based rental. This creates a direct link between all businesses in the company, investors in the company, consumers and the community as a whole. It is proposed that when the company  
30 is of reasonable size and with the assistance of the technology available, regular

reporting of previous performance and other statistics in respect of the company would establish information such as the average daily rate paid by the company as a return on investment.

5 The hotel business would be designed to be highly efficient, and initially link with travel organisations that have existing global retail networks in order to sell room space and attract an international influence through the buildings. Each module may have hotel touch screen vending machines that allow a guest to electronically pay for a room. The computer would hold a deposit via credit card for a 24-hour period, which would be released when house cleaners had re-  
10 entered the room as being vacant. Not only will the buildings be rendered "intelligent" by design-based solutions, but any occupant or visitor, or business or social network establishing contact (via tourism, visitors, internet and so on) will be energised and strengthened by association with them.

As the company grows in size, new businesses will be established as the  
15 building services range may increase with economies of scale. It is envisaged that the main buildings will incorporate another business similar to the hotel operation. A serviced office operation may be provided utilising the modules but also having it own meeting/presentation room/mini in-house internet cinema and so forth. Different business services may be made available to all modules in the company  
20 and all other general hotel services may be available to business guests through the menu on each of the module's user-friendly interface system, including services from dry cleaning, to meal deliveries from associated restaurants.

In an effort to improve liquidity and tradeability of units in the company, and to maximise return on investment whilst minimising the downside risk of  
25 fluctuations in the value of different market sectors, the company mentioned previously, would be established via prospectus under the Managed Investments Act. The company will sell units in order to provide the equity required for the progressive development of new buildings to add to the existing network.

The ownership system is ideal as it allows unit holders to be in control of  
30 and share in the pooled income of the commercial assets of the group. These will

be managed by the company's board of management which will allow unit holders the option to vote via e-mail and communicate with the company on a regular basis. People with suitable skills from within the company will be encouraged to set up appropriate businesses within the company's commercial areas; in any  
5 event a professional and contemporary tenancy mix will be established. Hotel and office space may be sold over the internet. Therefore, the modules are more tradeable and acceptable to the financial markets.

A franchised management may be used, if desired, with the management organisation having control and/or input to all business in the system.

10 In order to maintain the integrity of the product and the sites the company will be required to purchase all new sites and construct new buildings.

It will be understood that the invention disclosed and defined in this specification extends to all alternative combinations of two or more of the individual features mentioned or evident from the text or drawings. All of these  
15 different combinations constitute various alternative aspects of the invention.

It will also be understood that the term "comprises" (or its grammatical variants) as used in this specification is equivalent to the term "includes" and should not be taken as excluding the presence of other elements or features.

**TIME DEVELOPMENTS PTY LTD**

20 By their Registered Patent Attorneys  
**Freehills Patent Attorneys**

**24 March, 1999**

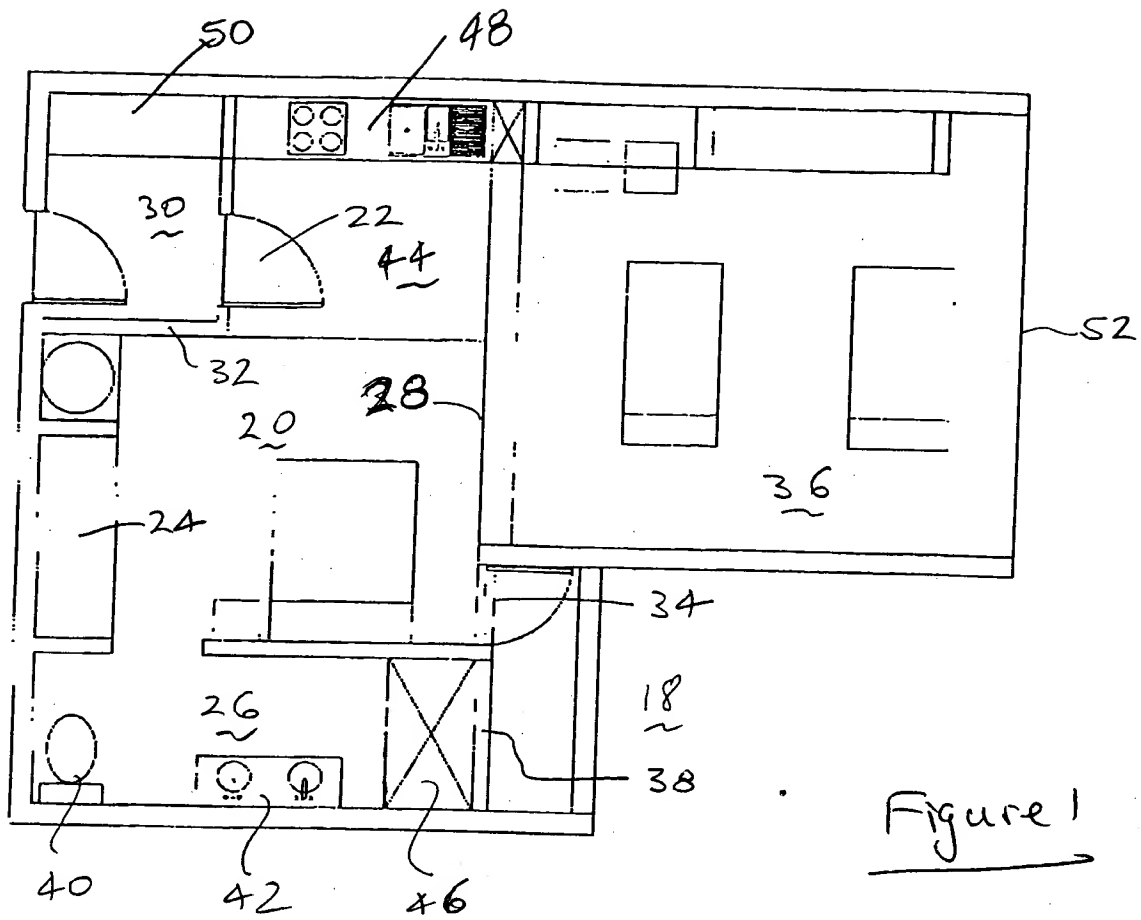


Figure 1



Figure 3

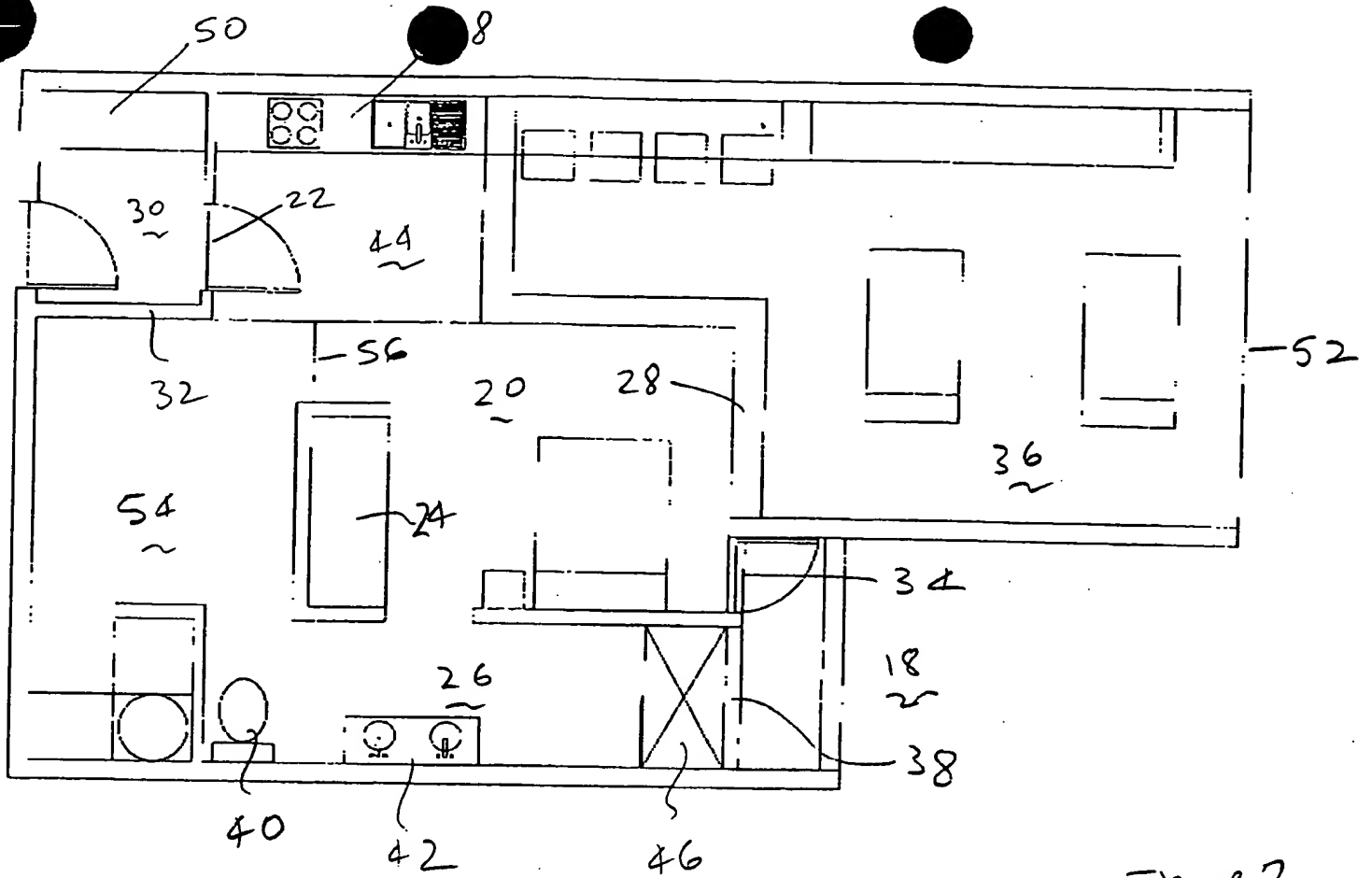


Figure 2

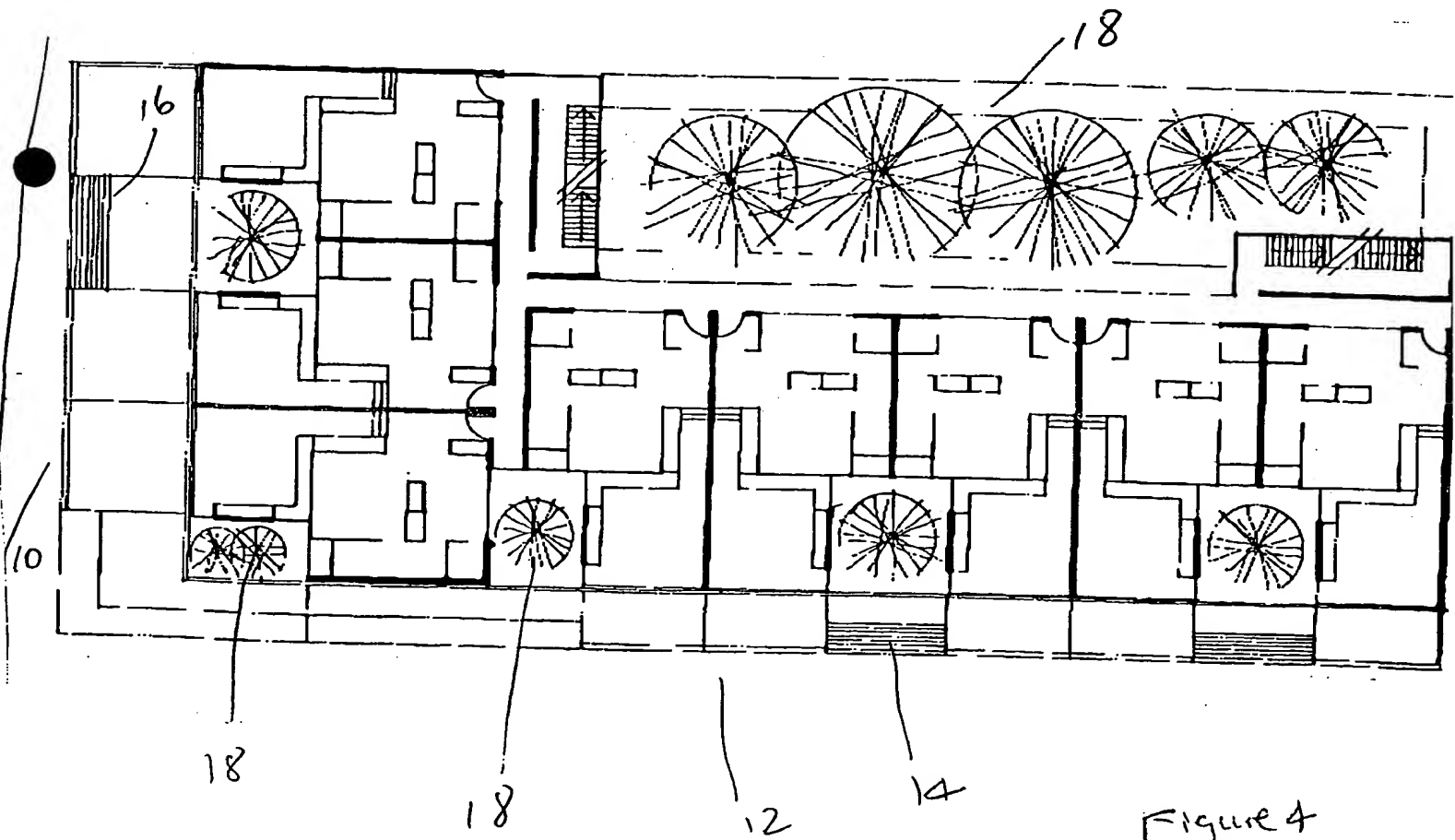


Figure 4

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